

Claims

1. A method of extracting at least one plate from a stack of plates (2) from below, characterized by the following method steps:
 - 5 a) supporting the stack of plates (2) with the aid of at least two rests (3) upon the boundary regions of which the lowest plate of the stack of plates (1, 2) rests,
 - b) raising the stack of plates (2) so that the rests (3) are freed from the lowest plate,
 - 10 c) moving the rests (3) horizontally out of range of the stack of plates (2),
 - d) lowering the stack of plates (2) to such an extent that the rests (3) are located at a position between the lowest plate and the neighboring plate thereabove,
 - 15 e) moving the rests (3) horizontally into the gap between the lowest plate and the neighboring plate thereabove, and
 - f) further lowering the stack of plates (2) until the second lowest plate rests upon the rests (3).
- 20 2. A method of inserting a plate (9) into a stack of plates (1) from below, characterized by the following method steps;
 - g) transporting the plate (9) that is to be inserted under the stack of plates (1),

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- e) raising the plate (9) that is to be inserted until the stack of plates (1) rests upon the plate (9) that is to be inserted,
 - f) further raising the plate (9) that is to be inserted and the stack of plates (1) resting thereupon so that the lowest plate of the stack of plates (1) is freed from the rests (3) which support the stack of plates (1),
 - g) moving the rests (3) horizontally out of range of the stack of plates (1),
 - h) further raising the plate (9) that is to be inserted together with the stack of plates (1) resting thereupon until the rests (3) are located at a position below the plate (9) that is to be inserted,
 - i) moving the rests (3) horizontally under the plate (9) that is to be inserted, and
 - 15 k) lowering the plate (9) that is to be inserted and the stack of plates (1) resting thereupon until it rests upon the rests (3).

20 3. A method in accordance with Claim 1 and 2, characterized in that both the method steps a) to f) and the method steps g) to k) are carried out by the same device.

4. A method in accordance with any of the preceding Claims, characterized in that the rests (3) are moved out of range of the

stack of plates (1, 2) when a plate is raised or lowered past them.

5. A method in accordance with any of the preceding Claims,
5 characterized in that the stack of plates (1, 2) is rotated through
a given angle of rotation for each extraction and/or insertion
process.

6. A method in accordance with any of the preceding Claims,
10 characterized in that the rotational movement is combined with
the horizontal movement of the rests (3) into and/or out of range
of the stack of plates (1, 2).

7. A method in accordance with any of the preceding Claims,
15 characterized in that a plate (9) extracted from a first stack of
plates (1) is inserted into a neighboring stack of plates.

8. A method in accordance with any of the preceding Claims,
20 characterized in that the extracted plate and/or the plate that is
to be inserted is transported horizontally.

9. A device for extracting a plate from a stack of plates (1, 2) from
below and for inserting a plate into a stack of plates (1, 2) from
below, characterized by

- at least one lifting device (5) for vertically raising and lowering a plate (9) and/or a stack of plates (1, 2), and
- at least one plate supporting device (4) comprising at least two rests (3) for supporting the plates (9) or the stack of plates (1, 2).

10. A device in accordance with Claim (9), characterized in that the lifting device (5) comprises a plate seating means (6) which is rotatable through a given angle of rotation

11. A device in accordance with Claim 9 or 10, characterized in that the plate seating means (6) comprises a horizontal cam profile (13).

12. A device in accordance with any of the Claims 9 to 11, characterized in that the rest (3) of the plate supporting device (4) comprises a vertical cam profile (14) which cooperates with the horizontal cam profile (13) of the plate seating means (6).

13. A device in accordance with any of the Claims 9 to 12, characterized in that the plate supporting device (4) comprises a biasing device (15) for pressing the vertical cam profile (14) onto the horizontal cam profile (13) of the plate seating means (6).

14. A device in accordance with Claim 13, characterized in that the biasing device (15) is a weight or a spring.

5 15. A device in accordance with any of the Claims 9 to 14, characterized in that the control surface of the horizontal cam profile (13) is formed in such a way that it presses the rests (3), against the effect of the biasing device (14), radially outward and out of range of the stack of plates (1) upon rotation of the plate seating means (6) in a first rotational movement, and permits a
10 controlled horizontal movement of the rests (3) radially inward into the region of the stack of plates (9) upon rotation of the plate seating means (6) in a further rotational movement.

15 16. A device in accordance with any of the Claims 9 to 15, characterized in that the control surface of the vertical cam profile (15) is formed in such a way that the rest (3) is movable radially inward into the region of the stack of plates (9) when lowering the lifting device (5), and is movable radially outward from the stack of plates (1) when raising the lifting device (5).

20 17. A device in accordance with any of the Claims 9 to 16, characterized by a horizontal conveyor belt (8) for transporting the extracted plate and/or the plate (9) that is to be inserted.

18. A device in accordance with any of the Claims 9 to 17, characterized in that there are provided at least two stacks of plates each having at least one lifting device and at least two plate supporting devices.

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19. A device in accordance with any of the Claims 9 to 18, characterized in that the lifting device (5) comprise a common stroke-type driver device.

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20. A device in accordance with any of the Claims 9 to 19, characterized in that the plate seating means (6) of the at least two lifting devices (5) comprise a common rotary-type driver device (10, 11).

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21. A device in accordance with any of the Claims 9 to 20, characterized in that the plates (9) are in the form of pallets for accommodating discs or substrates.

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22. A device in accordance with any of the Claims 9 to 21, characterized in that the central portions of the plates (9) comprise a vertically upwardly projecting stud which centralises the plate located thereabove in the stack of plates (1, 2).

23. A device in accordance with any of the Claims 9 to 22, characterized in that the outer regions of the plates (9) in the stack of plates (1, 2) are mutually spaced.

5 24. A device in accordance with any of the Claims 21 to 23, characterized in that the discs are optical data carriers.

10 25. A device in accordance with any of the Claims 9 to 24, characterized in that the stack is arranged in a cylinder in which the plates, pallets and/or discs are subjected to a stream of a processing medium, in particular a cooling medium.